DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

Bay Area Branch
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Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 69.28

WELDING INSPECTION REPORT

Resident Engineer: Pursell, Gary
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-002096
Date Inspected: 05-Apr-2008

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island

OSM Arrival Time: 1730
OSM Departure Time: 530
Location: Shanghai, China

CWI Name: Hu Wei Qing

Inspected CWI report:	☐ Yes	☑ No	☐ N/A	**CWI Present:**	☑ Yes	☐ No	
Electrode to specification:	☐ Yes	☑ No	☐ N/A	**Rod Oven in Use:**	☐ Yes	☐ No	☑ N/A
Qualified Welders:	☑ Yes	☐ No	☐ N/A	**Weld Procedures Followed:**	☐ Yes	☑ No	☐ N/A
Approved Drawings:	☐ Yes	☐ No	☑ N/A	**Verified Joint Fit-up:**	☐ Yes	☐ No	☑ N/A
				Approved WPS:	☐ Yes	☑ No	☐ N/A
				Delayed / Cancelled:	☐ Yes	☑ No	☐ N/A

Bridge No: 34-0006
Component: OBG Floor Beams

Summary of Items Observed:

CALTRANS Quality Assurance (QA) Inspector, Erik Prue was present for the fabrication scheduled for this project at the ZPMC facility in Shanghai, China for the San Francisco Oakland Bay Self Anchored Suspension Bridge.

Bay 7: QA Inspector Mr. Erik Prue observed ZPMC welder Sun Ling Ling performing a Critical Weld Repair (CWR) to weld joint FB 008-005-009 using the Shielded Metal Arc Welding (SMAW) process. The CWR procedure specified to be used is CWR040 utilizing the Flux Core Arc Welding (FCAW) process, Welding Procedure Specification (WPS) 345 FCAW-1. ZPMC QC Inspector let welder finish weld repair on weld joint 009. The weld repair location for weld 009 is 2710 mm from “Y” and 180 mm in length. An incident report was generated and sent to task leaders Mr. Craig Hager, Mr Robert Cuellar, and SMR Mr. Ady Velasco. The QC Inspector directed ZPMC welding personnel to change the welding process to the specified FCAW process listed on the CRW040 welding procedure for the remaining CWR repairs on FB 008-005.

Bay 7: QA Inspector randomly observed ZPMC qualified welder Mr. Wu Wanyong ID#050242 welding at the flange piece to floor beam for FB 018-001-125 thru 127. Mr. Wu was observed welding in the 1G (flat) position utilizing flux cored arc welding (FCAW) process with a 1.4mm diameter electrode, filler metal brand Supercored 71H, class E71T-1 semi automatic. QA Inspector observed the ZPMC QC Inspector Mr. Qi Xia Yong Zheng verifying that the welding parameters and pre-heat were in accordance with the Welding Procedure Specification (WPS). QA Inspector also verified the preheat temperature to be a minimum of 54°C and measured the welding parameters to be 302 amps, 30.6 volts, a travel speed of 303 mm/min and a shielding gas flow of 23L/min. Welding parameters measured by QA Inspector appear to be in general compliance with the approved

WPS-B-T-2231-TC-U4b-F.

Bay 7- QA Inspector performed ultrasonic verification testing of 10% of the Floor Beam Sub Assembly Complete Joint Penetration (CJP) Corner joint at weld joint FB 025-002-127. QA Inspector also performed ultrasonic verification testing of 100% of the Floor Beam Sub Assembly CJP Butt joint FB 025-002-021, and T joint FB 018-001-148 (repair-1). The Ultrasonic Testing (UT) was performed to verify that 10% of the weld meets the requirements of the contract documents and AWS D1.5-2002. The weld and base metal were scanned utilizing a Krautkramer Branson USN 60 #01RN5T. QA Inspector performed a base metal lamination check using a 25mm diameter 2.25 MHz transducer and a shear wave scan using a 20mm x 15mm 2.25 MHz transducer on a 70 degree angle wedge from face A. For details please see the ultrasonic testing report TL-6027 dated April 05, 2008. QA Inspector found the welds inspected to be in compliance with AWS D1.5- 2002 Table 6.3 and the contract documents.

Summary of Conversations:

QA Inspector asked ZPMC QC Inspector why the SMAW process was being used on FB 008-005-009 critical weld repair (CWR) when the FCAW process is called out on the CWR040 procedure. QC Inspector informed QA Inspector that he believed the SMAW process was sufficient for the repair. QA Inspector explained that the FCAW welding process is specified and that is the welding process to be utilized. QC Inspector let the welding continue on for weld joint FB 008-005-009 to completion. QC Inspector then changed the welding process to FCAW for the remaining repairs on floor beam FB 008-005.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Patrick Lowry, 858 344-2712, who represents the Office of Structural Materials for your project.

Inspected By:	Prue,Erik	Quality Assurance Inspector
Reviewed By:	Hager,Craig	QA Reviewer